PHENIX

TECHNICAL SUPPORT 2013

PHENIX WEEKLY PLANNING

Oct. 3, 2013

Don Lynch

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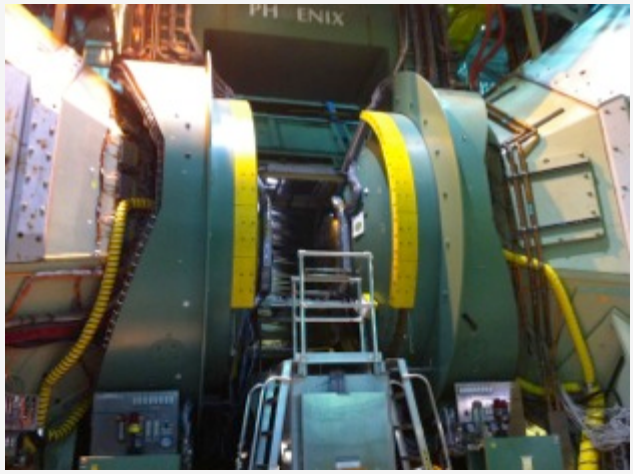
TECHNICAL SUPPORT 2013

This Week

- Close out MMS and MMN MuTr WP's
- All Pixel ladders ready for installation
- Finish assembly and testing of VTX West Strip-pixel ladders
- Remove Station 1 South Scaffolding
- Upgrade MuTr flow distribution behind south MMS
- Re-install Station 1 south scaffolding
- Begin upgrading VTX/FVTX supply/return lines to stainless
- Continue MPC-Ex installation prep & design/fabrication of assembly fixtures & components
- Continue Installing Window Washer Winch
- Continue sPHENIX support
  - Build 1 tower of small HCal for fit up testing
  - HCal prototype
  - EMCal prototype design continuing
- Future IR evolution modeling



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Next Week

- Assembly of FVTX/VTX West
- Finish assembly and testing of VTX East Strip-pixel ladders
- Finish Upgrade MuTr flow distribution behind south MMS
- Re-install Station 1 south scaffolding
- Continue upgrading VTX/FVTX supply/return lines to stainless
- Continue MPC-Ex installation prep & design/fabrication of assembly fixtures & components
- Finish Installing Window Washer Winch
- Continue sPHENIX support
  - HCal prototype
  - EMCal prototype design continuing
- Future IR evolution modeling

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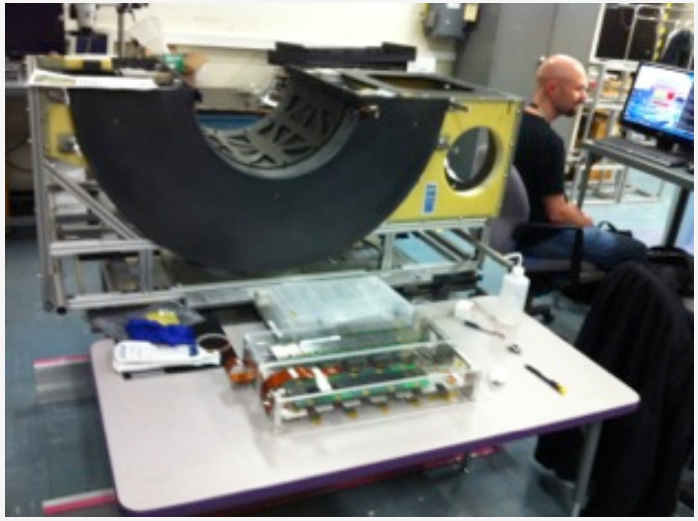
VTX/FVTX

Stave production completed
Begin assembling FVTX/VTX

Finish Strip-pixel ladder production and testing in progress

VTX halves next week



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VTX & FVTX Remaining Tasks

Receive remaining strippixel stave components	Done
Assemble & test strippixel staves	Done
Receive remaining pixel ladders	Done
Test pixel ladders	Done
Integrate staves & electronics & test	by 10/11
Assemble East & West VTX & test	by 10/20
Transport FVTX to Chemistry building.	By 10/21
Integrate FVTX Integrated into East & West VTX.	By 10/25
Survey VTX/FVTX assembly	By 11/8
Transport VTX&FVTX assembly to PHENIX and install on rails.	11/11
Re-install coolant and N_2 lines, LV, signal and HV cables and fibers	by 11/25
Re-survey full detector in IR	by 11/27
Re-commission VTX & FVTX	by 1/1/14

DC East & West Repairs Summary of Tasks

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- East Carriage move to AH – Done
- Work Permit - Done
- Design & Construct tent (similar to tent constructed for DC West last year) to prevent foreign material from entering DC East cavity while window is removed. - Done
- CAD to provide 2 vertical manlifts to allow DC experts to remove and replace window - Done
- Get supplies and materials from Stony Brook for window replacement - Done
- Troubleshooting and repairs on DC West - Done
- Supply Gas, DAQ and Electric to EC East - Done
- Isolate and repair leak on DC East - Done
- Remove and replace window - Done
- Isolate and repair leak under electronics card - Done
- Leak test - Done
- Operational tests - Done
- Remove tent and manlift – Done
- DC West broken wire removal – 12/15 - 12/30

MPC-Ex Initial (Partial) Installation

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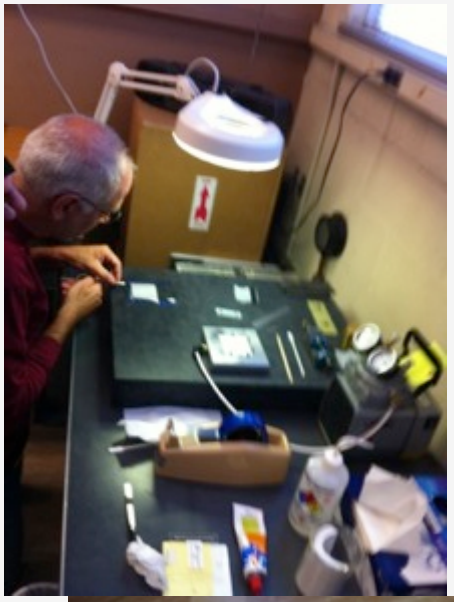
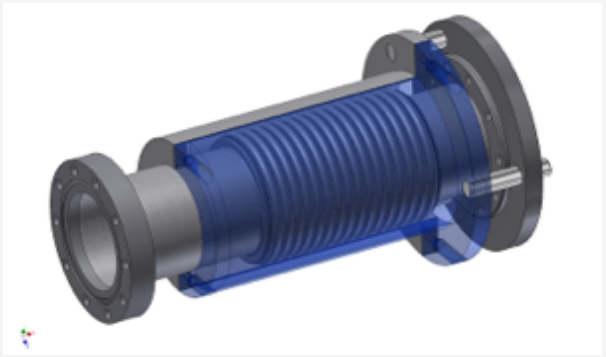
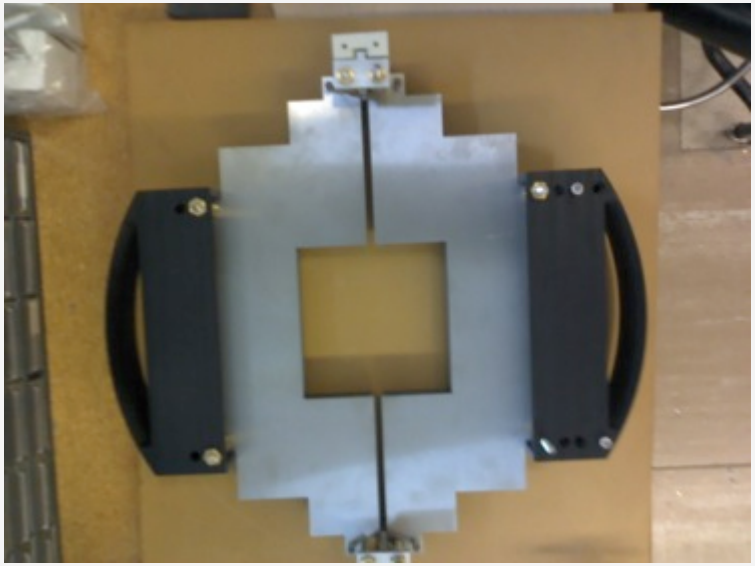




Design vacuum bellows anti-squirm in MPC S Cavity to accommodate MPC-Ex. Part is done needs to be "adjusted". Adjustment fixture in progress



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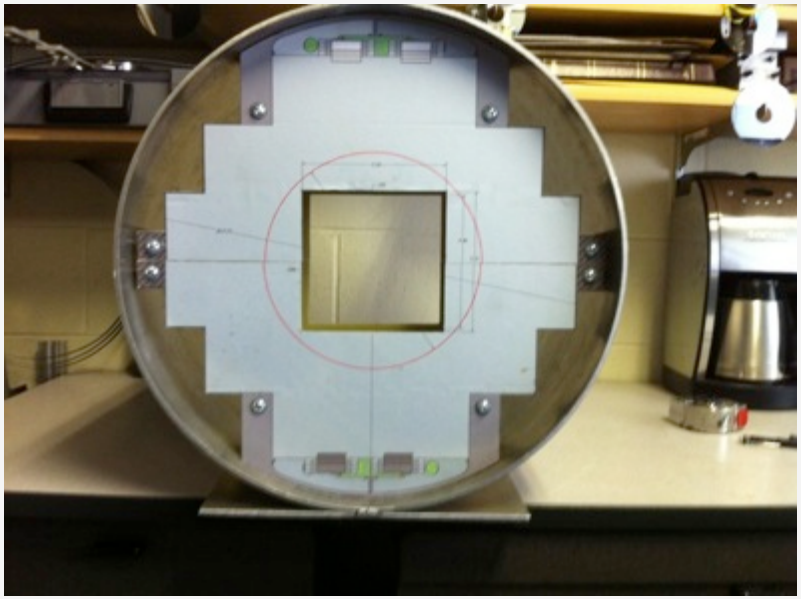

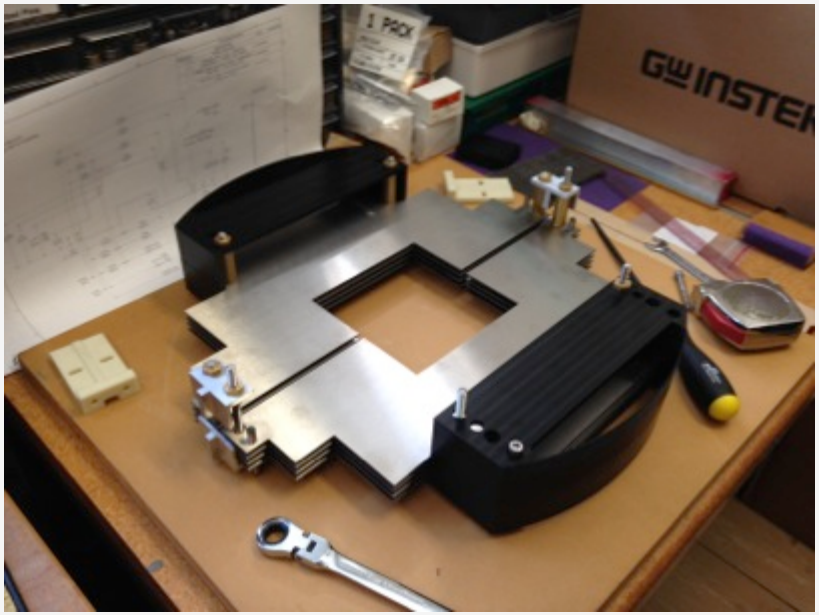

MPC-Ex mockup to be used for cable and utilities routing plans

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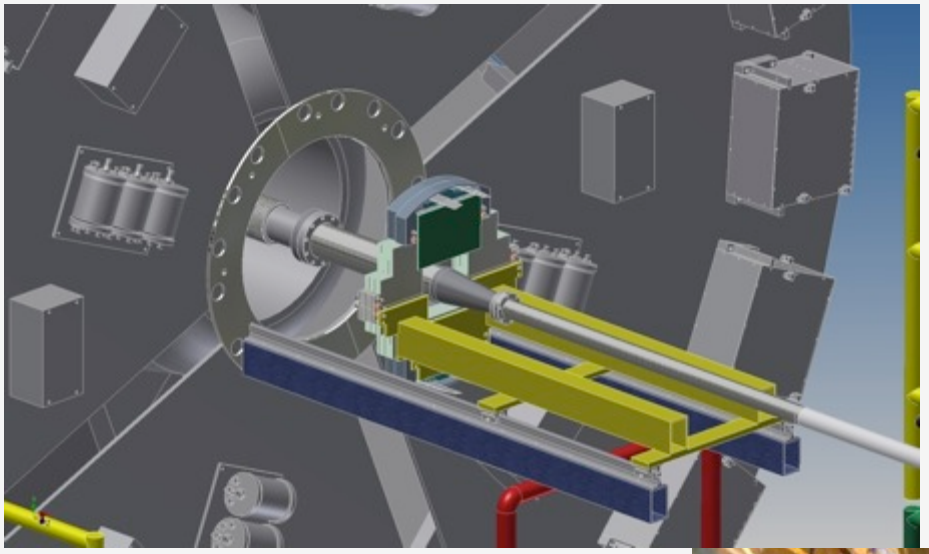

Installation fixture design completed out for fabrication/ procurement

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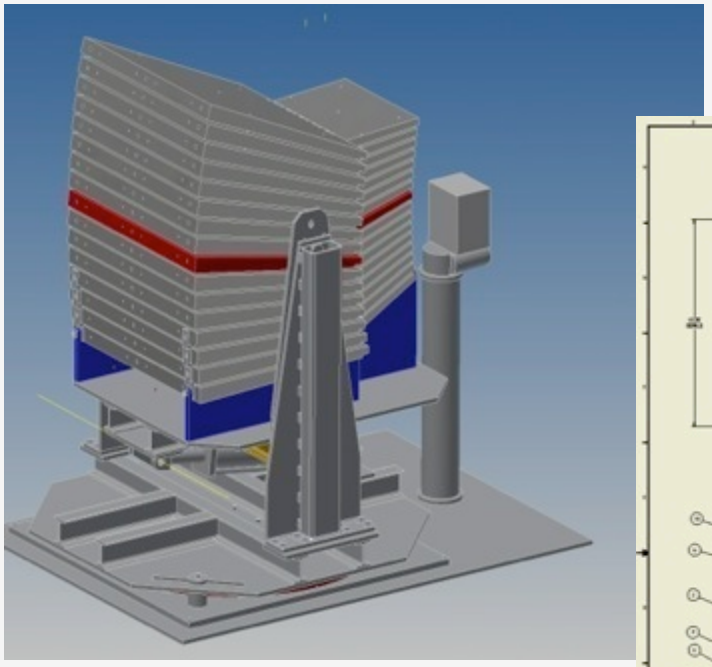

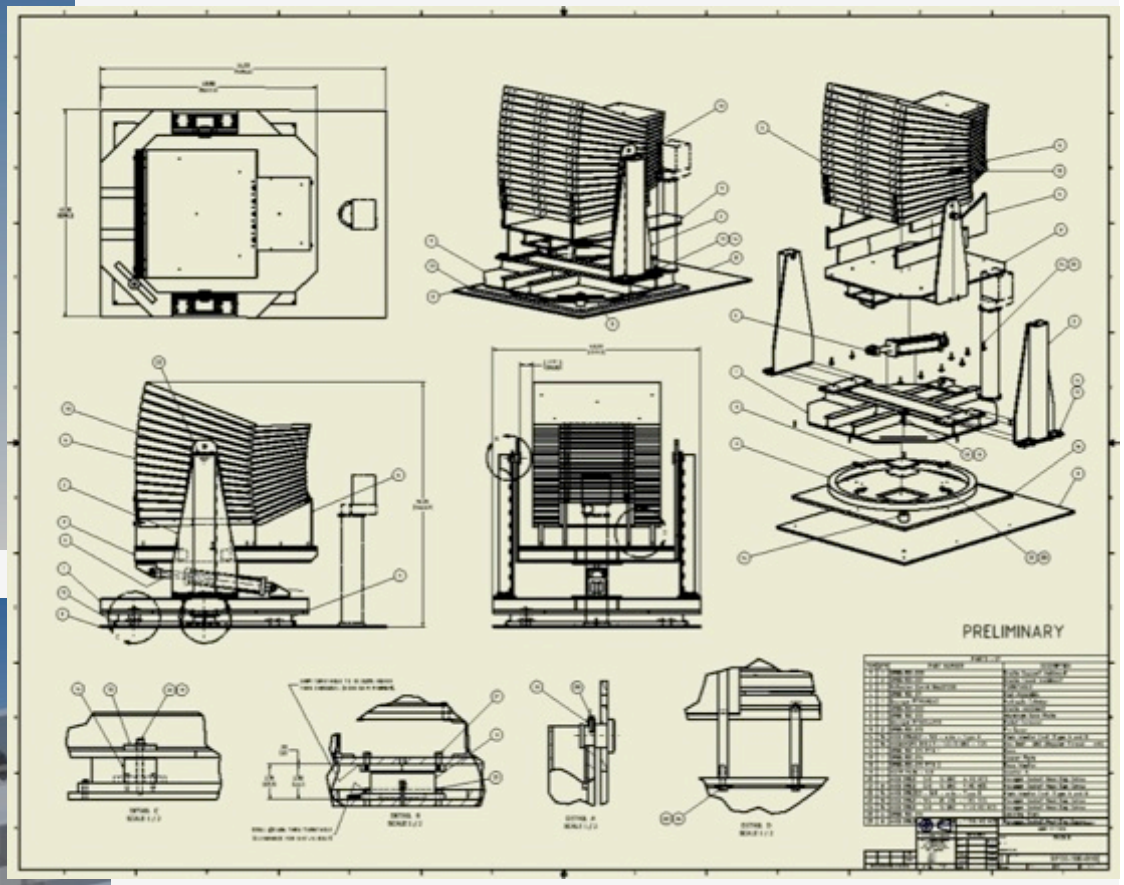

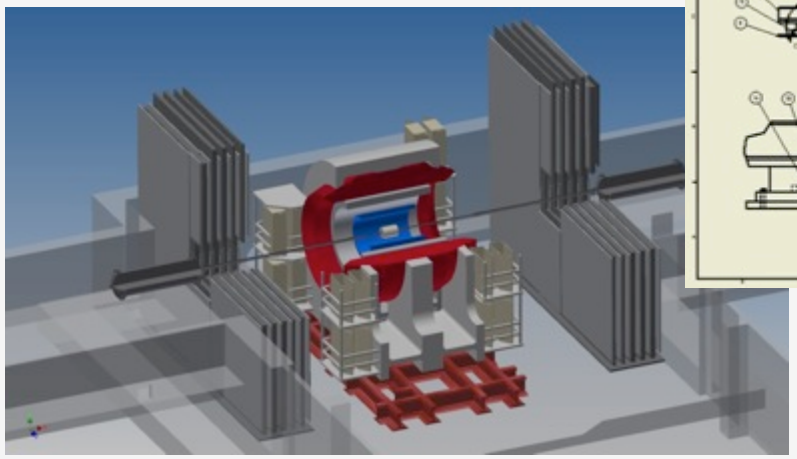

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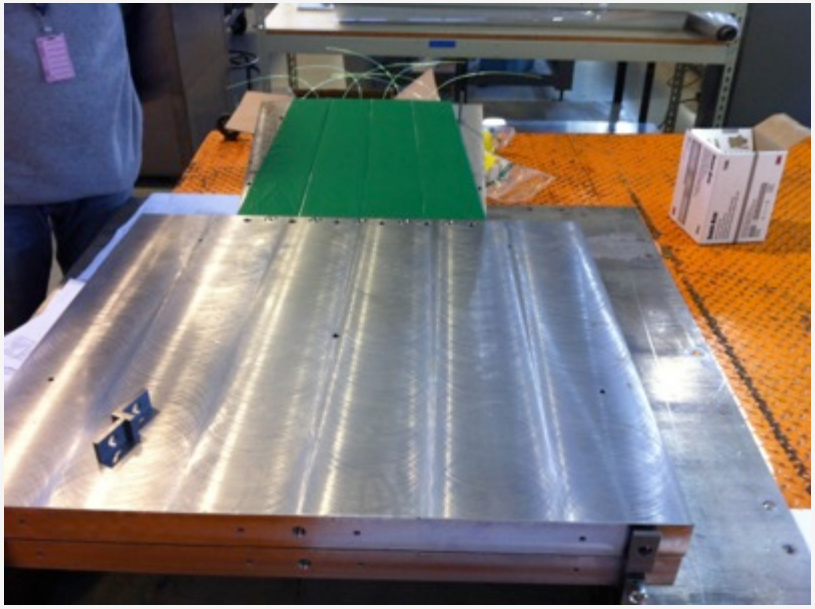

Hi-Bay Prototype Assembly Area

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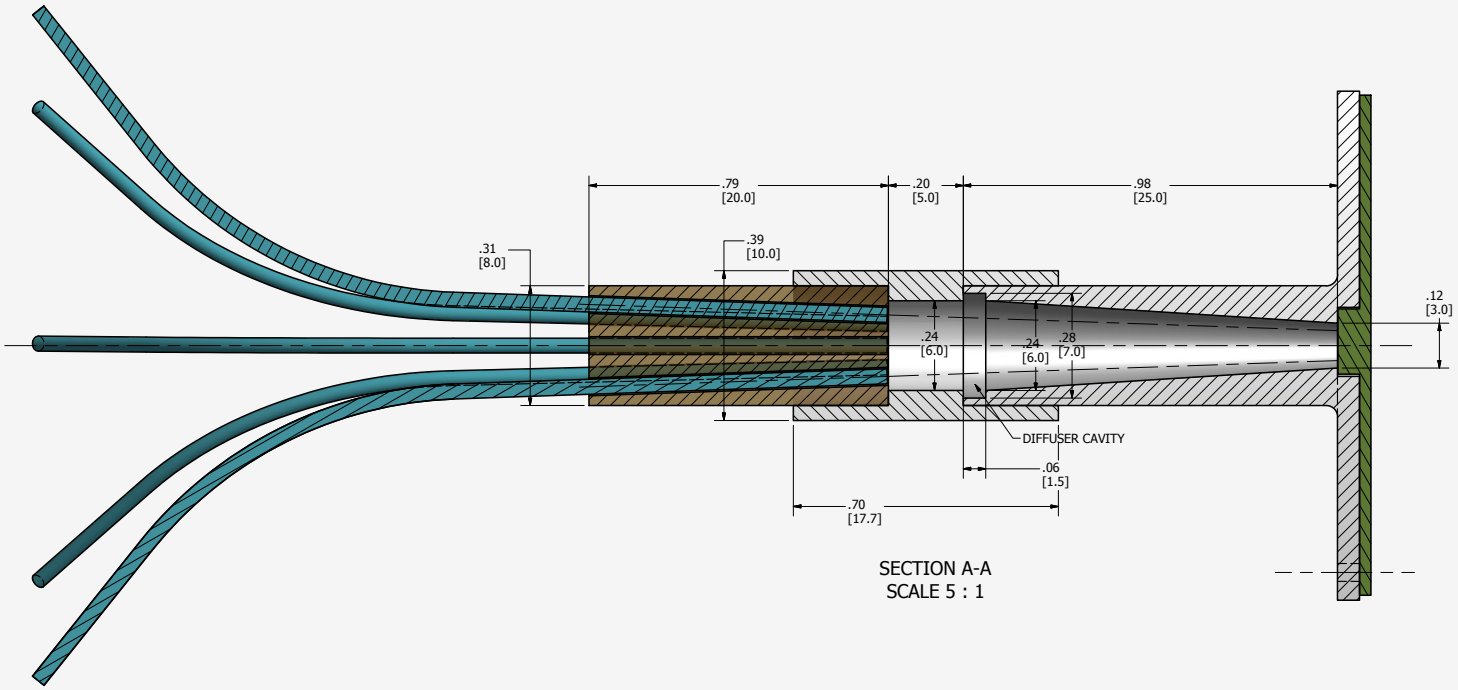

Light Collection for HCal

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sPHENIX Prototype Assembly and Test Tasks

TECHNICAL SUPPORT 2013

Design Hcal and EMCal Prototypes and support components and shipping crates – in progress

Procure materials and detail parts – in progress

Receive and inspect parts

Assemble prototypes

Test assemblies for mechanical fit and function

Package and ship prototypes to FERMI Lab for performance tests

Test and Evaluate at Fermi Lab

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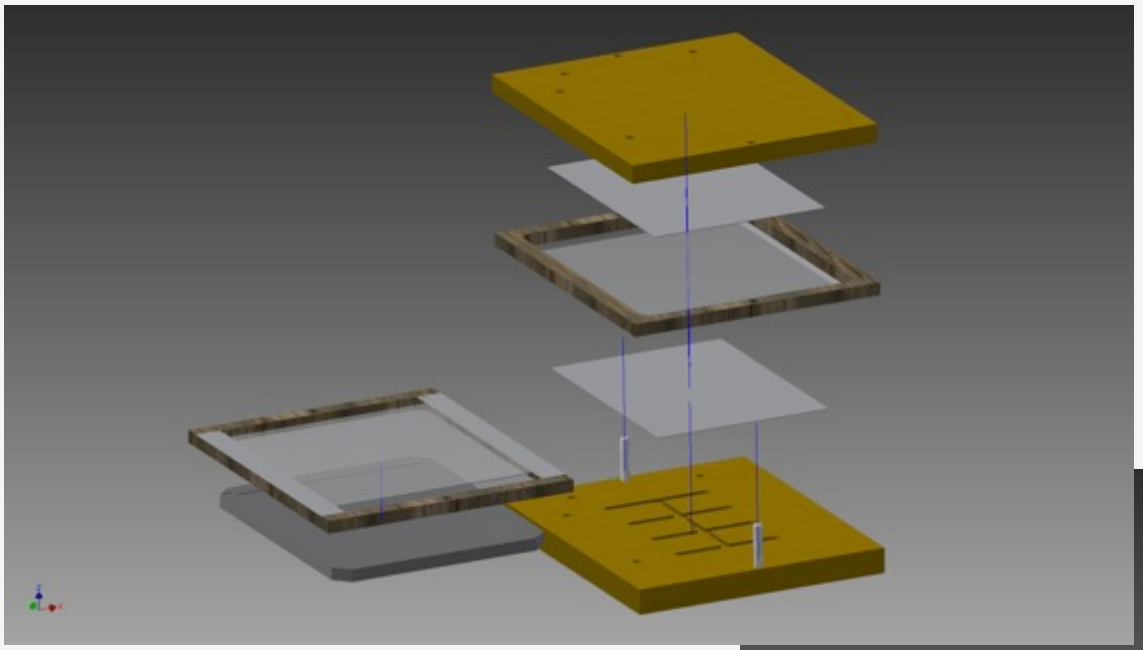
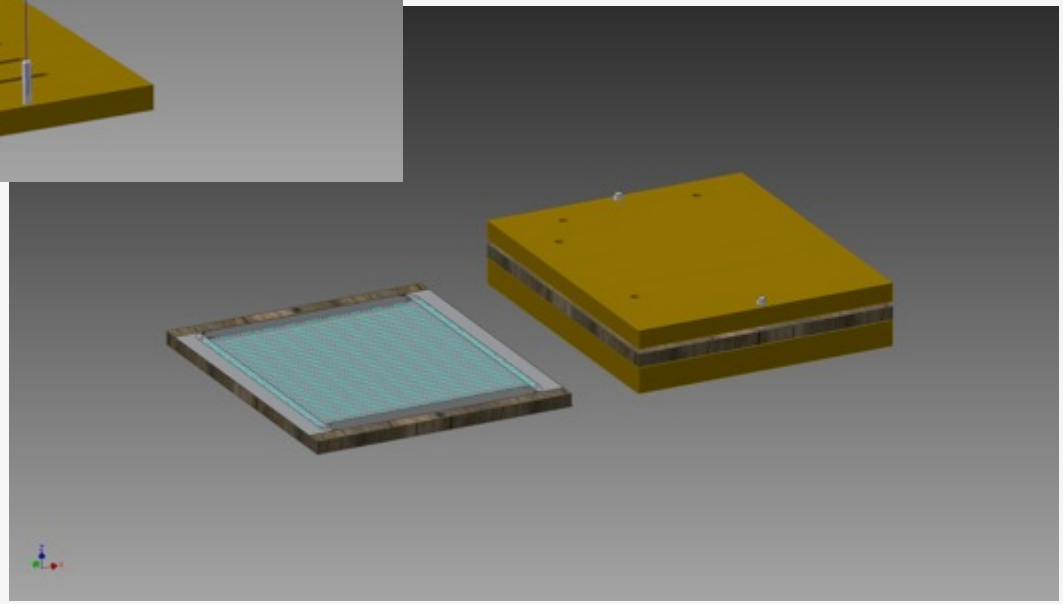
EMCal Prototype



Gluing Fixture for sandwiches, Tower Stacking/holding fixture is next



Prototype "Egg Carton" light collection

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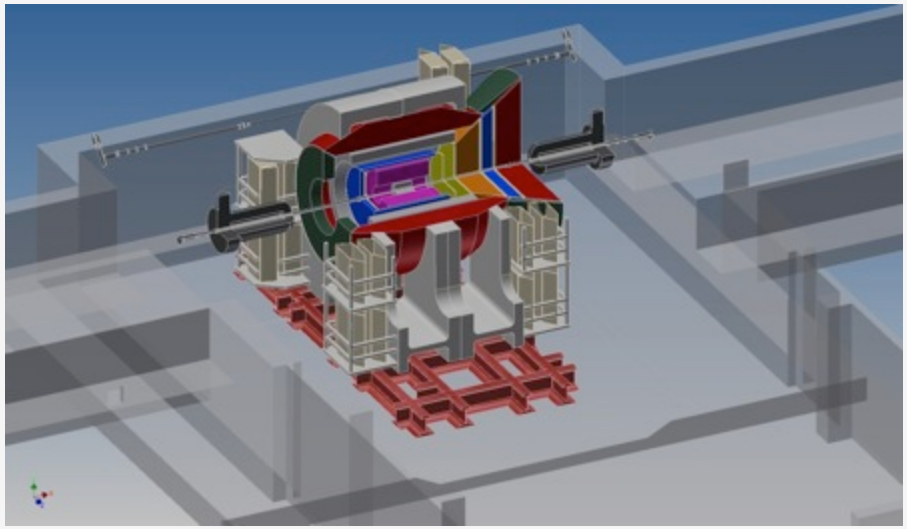
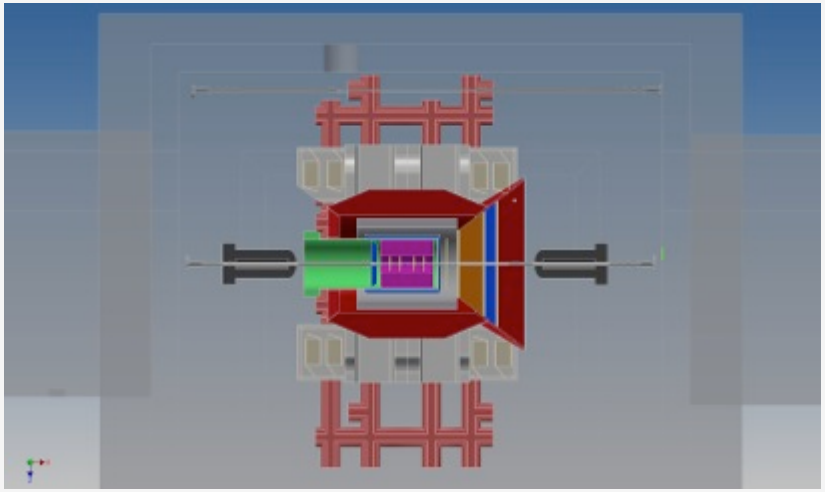
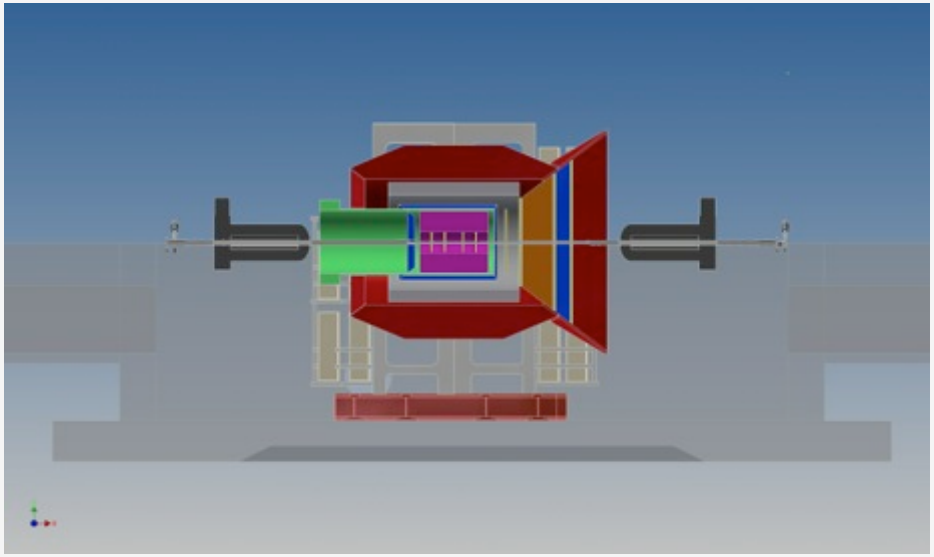


Plan View





Elevation View

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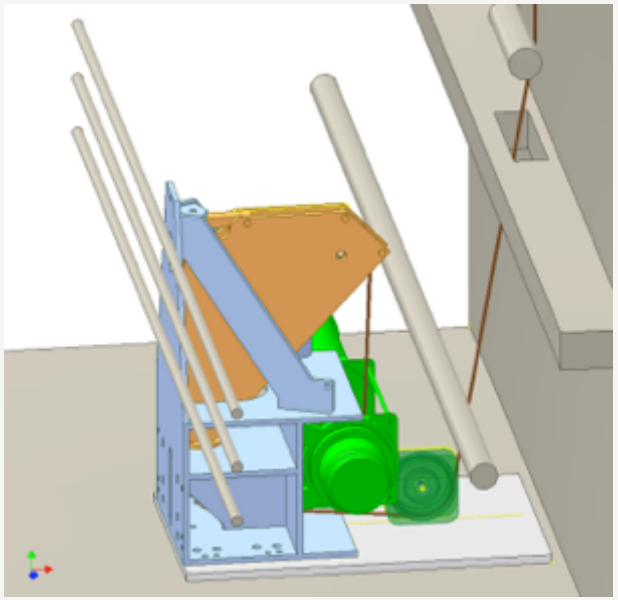

Window Washer Winch Upgrade

WWW mounted and ready for install.

Window Washer Winch Upgrade Summary of Tasks

Receive and Inspect winch and components - Done

Design and Fabricate Winch & Sheave Base - Done

Install and test Winch, integrate with window washer hardware, controls and power

Final Inspection and approval of window washer upgrade

(Note: remote safety pin insertion and retraction was installed and has been in operation since the start of run 13.)

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Alcohol Chiller Work For Shutdown 2013

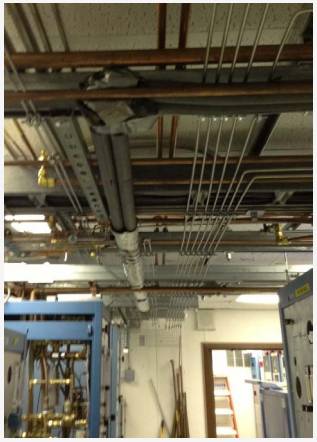
Merlin Chiller

➢Chiller supplyed about ½ the flow as in the past.

- •Pressure on chiller says ~70-80psi
- •Install gauge on supply line and measure actual output pressure.
- •Replace chiller with spare if needed.
- •Send old chiller out for maintenance or replace.

New Chiller Received.

Re-Insulate Glycol lines



❖Remove old polyethylene insulation and wrap and replace with foam rubber insulation.

- •Temp of fluid is affected too much by temp change in the gas house.
- •Lines are condensing and dripping because of gaps in insulation.

Additional Shutdown Work

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- ZDC Remove, Test, Recalibrate

Access on South side enhanced by shielding removal for DX magnet repositioning effort. Overhead cranes can now be used with existing fixture to remove ZDC modules

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2013 Shutdown Schedule

TECHNICAL SUPPORT 2013

Prep for 2013 shutdown	Done
Design, Fabricate MPC-Ex	
Define tasks and goals	
Analysis and design of fixtures, tools and procedures	
Fabricate/procure tools and fixtures	
Tests, mockups, prototypes	
Receive, fabricate, modify, finish installables	
Review and approval of parts, tools, fixtures and procedures	
Assembly and QA tests	
VTX Strippixel redesign	Done
VTX Strippixel 1st article stave assembly	Done
VTX Strippixel 1st article qualification/performance tests	Done
VTX Strippixel sensor reclamation	Done
Run 12 Ends	Done
Shutdown Standard Tasks	Done
~~• Open wall, disassemble wall, Remove MuID Collars~~	
• Move EC to AH, etc.	
VTX/FVTX Post run tests	Done
Disassemble VTX/FVTX services	Done
July 4th Holiday	Done
Remove VTX/FVTX and transport to Chemistry Lab	Done
Remove Lampshade MMS, East Vertical	Done
VTX strippixel stave production	Done
Pixel Ladder repairs	Done
VTX Strippixel ladder assembly & Test	7/15-10/11/2013
Assemble, Test and Install MPC-Ex (Partial, location TBD)	7/22-11/15/2013

2013 Shutdown Schedule (Continued)

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MuTR Troubleshooting, maintenance and repairs	Done
Summer Sunday (8/4) Prep and teardown	Done
Summer Sunday (RHIC)	Done
DC West troubleshooting & Repairs	Done
DC East Window Upgrade and Related Repairs	Done
sPHENIX HCal Prototype Assembly/test	8/19-12/31/2013
Re-assemble VTX/FVTX halves	8/19-10/20/2013
Test, survey (at Chemistry and IR) and re-install VTX/FVTX	10/21-11/11/2013
Install & Survey VTX/FVTX in 1008 IR	11/11-11/25/2013
VTX Commissioning	11/25-12/31/2013
Other detector maintenance as required	As required
Infrastructure maintenance as required	As required
Pre-run commissioning and prep for run 14	11/25-12/31/2012
Veterans Day, Lab Holiday	11/11/2013
Prep for EC roll in	11/1-11/22/2013
Roll in EC	11/25-11/27/2013
Prep IR for run	11/1-11/30/2013
Thanksgiving Holidays	11/28-29/2013
Pink/Blue/White sheets	12/14-12/31/2013
DC West wire repairs	12/15-12/30/2013
Christmas Holiday	12/24-25/2013
New Year's Day Holiday	1/1/2014
Start run 14	1/2/2014

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Safety and Security

From Ray Karol:

1. New LOTO rules now in place.
2. Please see the BNL video on Driving safety – backing out of a parking spot:

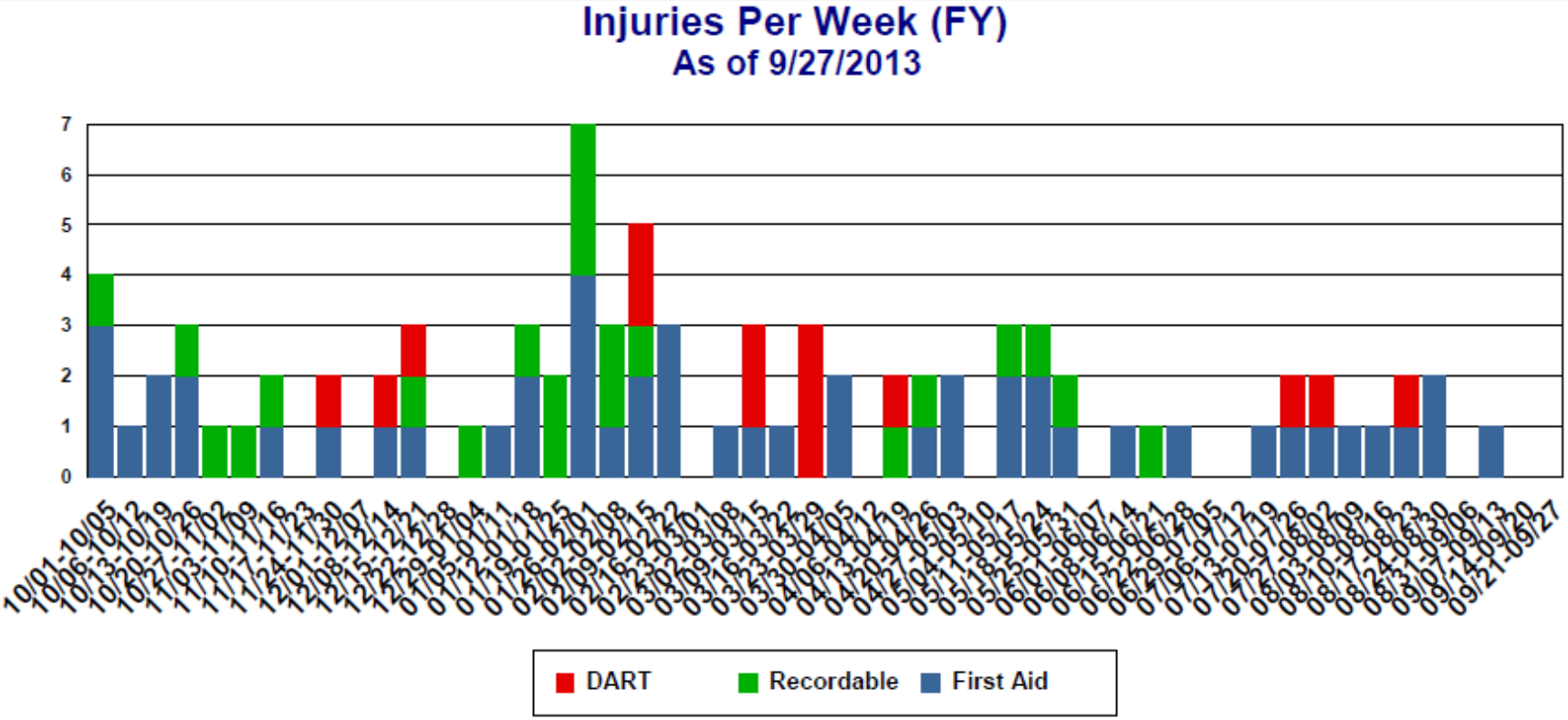
http://www.bnl.gov/safety/driving/

3. The following is more details on the recent vacuum window failure which occurred at BNL:

Event Description
- UHV Chamber overpressurize -→ catastrophic failure of a glass view
- No over pressure device. UHV compatible burst disks pop at +7-8 psi, glass port at + 5 psi
- Significant event: A piece of the view port flew ~ 10 feet and damaged a room entry door.
- No injury, by good luck.

Analysis
- Cause - Argon gas bottle used to vent the chamber thru a leak valve, no pressure relief.
- Regulator 800/30 psi.
- Usually vented with low pressure LN2 boil off from transfer line with Pres relief at +0.5-1 psi
- Proc. Changed to allow slow venting to protect Al window, risks not recognized.
- Need for more planning to ID new risks by changed vent configuration.

Immediate Lessons
- Remind workers on vac. systems that over pressure may involve equip. & personnel risks
- Vacuum system bleed up ops must include over pressure protection on the gas transfer line.
- Burst disks may not provide sufficient personnel protection. Fragile components may fail first.
- All are reminded to stop and re-evaluate risks when making changes. It is useful to ask others to review those changes to get another perspective.
- A 'questioning attitude' includes questioning your own actions.



Injury Status:

FY13 YTD: DART – 14, TRC – 36, First Aid – 49
FY12: DART – 17, TRC – 35, First Aid – 70
FY11: DART – 30, TRC – 44, First Aid – 45

FY13 Injury Listing: https://intranet.bnl.gov/esh/shsd/seg/OccInj/BNLInjuries.aspx

Recent Injuries		
		None

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Recent Events		
9/25/13	Non-Reportable	On 9/23/13, carpenters opened the crawl space hatch of Building 388 (Danish House) to assist an electrician who was tracing wires for a pending job. The carpenters found excessive water in the space and notified the Facility Project Manager of the building. On 9/25/13, after a preliminary assessment as to the potential cause of the "leak," it was discovered that the 4-inch main drain for the Danish House had separated, which resulted in the water and debris found on the concrete slab under the house. The supervisor of the workers inside of the building determined that a remediation plan would be instituted prior to continuing work. Industrial hygiene monitoring will be performed in both the main level of the house and the crawl space to determine the PPE requirements, if any, for the remediation workers. A work permit will be generated for this remediation activity. Once this is accomplished, the pending repair work for the drain line will proceed. (Event Link)
9/24/13	Non-Reportable	A BNL lineman was backing up a Laboratory pickup truck when he hit and knocked down a driveway light pole at the Center for Functional Nanomaterials (CFN). There were no injuries and no damage to the government vehicle. Electricians secured power to the pole. (Event Link)

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Where To Find PHENIX Engineering Info

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm